WHAT IS CLAIMED IS:

1   1.   A method for determining a preferred route using a computer-implemented

2   routing system, the method comprising:

3   using a routing system to access an origin and a destination in a routing graph

4   representing a network of roads including two or more nodes and one or more directed

5   links, each directed link being associated with a direction of travel from a starting node to

6   an ending node and representing a road and each node representing an intersection that

7   includes at least one road;

8   using the routing system to determine a preferred route from the origin to the

9   destination by using at least one directed link; and

10   communicating the preferred route from the routing system to a user system.

1   2.   The method of claim 1 wherein determining a preferred route from the

2   origin to the destination by using at least one directed link comprises determining a

3   preferred route from the origin to the destination by comparing the density of directed

4   links in a first region of the routing graph to the density of directed links in a second

5   region of the routing group.

1   3.   The method of claim 1 wherein determining a preferred route from the

2   origin to the destination by using at least one directed link comprises determining a

3   preferred route from the origin to the destination by applying a factor to a speed

4   associated with a particular directed link based on the density of directed links in a region

5   of the routing graph in which the particular directed link is located.

1   4.   The method of claim 1 wherein determining a preferred route from the

2   origin to the destination by using at least one directed link comprises determining a

3   preferred route from the origin to the destination by using directed link information for at

4   least one directed link.

1   5.   The method of claim 4 wherein the directed link information includes one

2   or more of a cost associated with the directed link, whether the directed link enters a no-

3   outlet region, whether the directed link lies within a no-outlet region, and an intersection

4   cost for each directed link-to-link transition.

1   6.   The method of claim 4 wherein determining a preferred route from the

2   origin to the destination by using at least one directed link comprises determining a

3   preferred route from the origin to the destination by using node information for at least

4   one node.

1   7.   The method of claim 6 wherein the node information includes one or more

2   directed links that link to the node, the number of driveable links that link to from the

3   node, and the total number of links that link to the node.

1   8.   The method of claim 1 wherein the preferred route is a preferred route for

2   driving a vehicle from the origin to the destination.

1   9.   The method of claim 1 wherein the preferred route is a preferred route for

2   walking from the origin to the destination.

1   10.   The method of claim 1 wherein the routing system comprises a routing

2   system provided through an Internet service provider.

1   11.   The method of claim 1 wherein the routing system and the user system use

2   the same processor.

1   12.   The method of claim 1 wherein communicating the preferred route

2   comprises communicating the preferred route over a connection that is established using

3   the Internet.

1   13.   A computer-readable medium or propagated signal having embodied

2   thereon a computer program configured to determine a preferred route using a computer-

3   implemented routing system, the medium or signal comprising one or more code

4   segments configured to:

5   use a routing system to access an origin and a destination in a routing graph

6   representing a network of roads including two or more nodes and one or more directed

7   links, each directed link being associated with a direction of travel from a starting node to

8   an ending node and representing a road and each node representing an intersection that

9   includes at least one road;

10   use the routing system to determine a preferred route from the origin to the

11   destination by using at least one directed link; and

12   communicate the preferred route from the routing system to a user system.

1   14.   The medium or signal of claim 13 wherein determining a preferred route

2   from the origin to the destination by using at least one directed link comprises

3   determining a preferred route from the origin to the destination by comparing the density

4   of directed links in a first region of the routing graph to the density of directed links in a

5   second region of the routing group.

1   15.   The medium or signal of claim 13 wherein determining a preferred route

2   from the origin to the destination by using at least one directed link comprises

3   determining a preferred route from the origin to the destination by applying a factor to a

4   speed associated with a particular directed link based on the density of directed links in a

5   region of the routing graph in which the particular directed link is located.

1   16.   The medium or signal of claim 13 wherein determining a preferred route

2   from the origin to the destination by using at least one directed link comprises

3   determining a preferred route from the origin to the destination by using directed link

4   information for at least one directed link.

1   17.   The medium or signal of claim 16 wherein the directed link information

2   includes one or more of a cost associated with the directed link, whether the directed link

3 enters a no-outlet region, whether the directed link lies within a no-outlet region, and an

4 intersection cost for each directed link-to-link transition.

1 18. The medium or signal of claim 16 wherein determining a preferred route

2 from the origin to the destination by using at least one directed link comprises

3 determining a preferred route from the origin to the destination by using node

4 information for at least one node.

1 19. The medium or signal of claim 18 wherein the node information includes

2 one or more directed links that link to the node, the number of driveable links to from the

3 node, and the total number of links that link to the node.

1 20. The medium or signal of claim 13 wherein the preferred route is a

2 preferred route for driving a vehicle from the origin to the destination.

1 21. The medium or signal of claim 13 wherein the preferred route is a

2 preferred route for walking from the origin to the destination.

1 22. The medium or signal of claim 13 wherein the routing system comprises a

2 routing system provided through an Internet service provider.

1 23. The medium or signal of claim 13 wherein the routing system and the user

2 system use the same processor.

1 24. The medium or signal of claim 13 wherein communicating the preferred

2 route comprises communicating the preferred route over a connection that is established

3 using the Internet.

1 25. A system for determining a preferred route using a computer-implemented

2 routing system, the system configured to:

3   access an origin and a destination in a routing graph representing a network of

4   roads including two or more nodes and one or more directed links, each directed link

5   being associated with a direction of travel from a starting node to an ending node and

6   representing a road and each node representing an intersection that includes at least one

7   road;

8   determine a preferred route from the origin to the destination by using at least one

9   directed link; and

10   communicate the preferred route from the routing system to a user system.

1   26.   The system of claim 25 wherein determining a preferred route from the

2   origin to the destination by using at least one directed link comprises determining a

3   preferred route from the origin to the destination by comparing the density of directed

4   links in a first region of the routing graph to the density of directed links in a second

5   region of the routing group.

1   27.   The system of claim 25 wherein determining a preferred route from the

2   origin to the destination by using at least one directed link comprises determining a

3   preferred route from the origin to the destination by applying a factor to a speed

4   associated with a particular directed link based on the density of directed links in a region

5   of the routing graph in which the particular directed link is located.

1   28.   The system of claim 25 wherein determining a preferred route from the

2   origin to the destination by using at least one directed link comprises determining a

3   preferred route from the origin to the destination by using directed link information for at

4   least one directed link.

1   29.   The system of claim 28 wherein the directed link information includes one

2   or more of a cost associated with the directed link, whether the directed link enters a no-

3   outlet region, whether the directed link lies within a no-outlet region, and an intersection

4   cost for each directed link-to-link transition.

1   30.   The system of claim 28 wherein determining a preferred route from the

2   origin to the destination by using at least one directed link comprises determining a

3   preferred route from the origin to the destination by using node information for at least

4   one node.

1   31.   The system of claim 30 wherein the node information includes one or

2   more directed links that link to the node, the number of driveable links that link to from

3   the node, and the total number of links that link to the node.

1   32.   The system of claim 25 wherein the preferred route is a preferred route for

2   driving a vehicle from the origin to the destination.

1   33.   The system of claim 25 wherein the preferred route is a preferred route for

2   walking from the origin to the destination.

1   34.   The system of claim 25 wherein the routing system comprises a routing

2   system provided through an Internet service provider.

1   35.   The system of claim 25 wherein the routing system and the user system

2   use the same processor.

1   36.   The system of claim 25 wherein communicating the preferred route

2   comprises communicating the preferred route over a connection that is established using

3   the Internet.